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Soil and Water Conservation News

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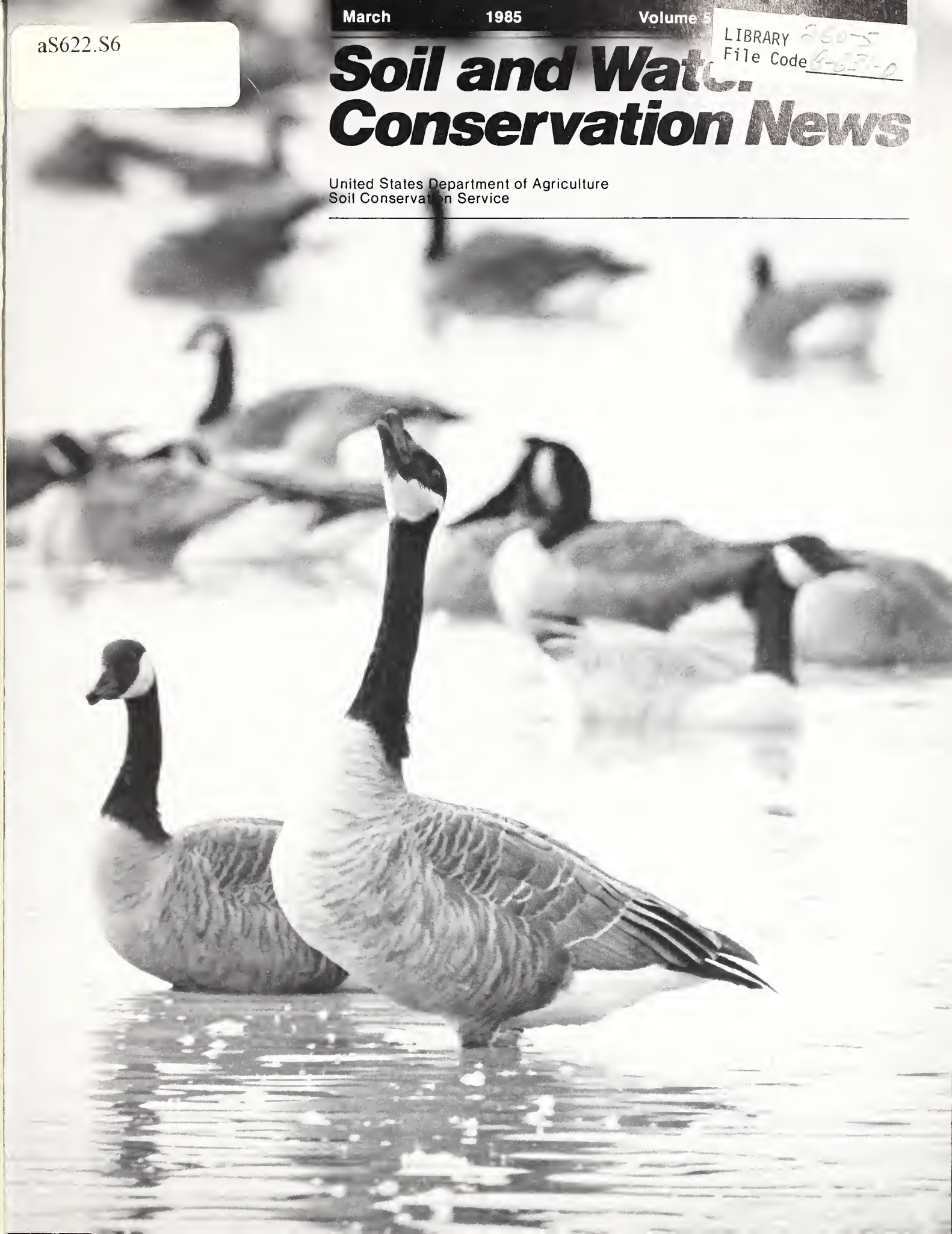

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Comments:
From the SCS Chief

Soil Conservation Benefits Wildlife

The link between controlling soil erosion and providing and improving fish and wildlife habitat is strong. The National Wildlife Federation is highlighting this relationship during National Wildlife Week this month and the rest of the year.

The National Wildlife Federation is an important ally in convincing landowners to manage all natural resources wisely. We share many common and inseparable goals.

Many of the conservation practices that SCS recommends to landowners to reduce soil erosion on crop, range, pasture, and forest land provide and improve fish and wildlife habitat.

For example, farmers using conservation tillage, especially no-till, leave crop residue on fields over winter, providing food and cover. Crop rotations; grassed waterways; narrow-base terraces; ponds; streambank protection; and proper range, pasture, hayland, and forest land management all provide benefits for fish and wildlife.

In addition, through the SCS plant materials program, we are working to develop plants for various conservation uses, and a side benefit of many is providing wildlife food and cover. Establishing permanent vegetation to protect critically eroding areas provides valuable wildlife habitat and reduces the amount of sediment entering streams, lakes, and rivers.

SCS encourages conservation districts to incorporate into their conservation programs fish and wildlife habitat objectives. We work closely at all levels with Federal, State, and local fish and wildlife conservation agencies and with universities and private institutions involved in wildlife conservation education and research. We cooperate on inventorying wildlife habitat, planning conservation systems to provide the most wildlife benefits, and encouraging landowners to manage all natural resources wisely.

Wildlife habitat management, like soil conservation, is too big a job for any one agency or group. Attaining both goals requires nationwide commitment.

Cover: Canada geese on a farm pond, Kent County, MD. (Photo by Tim McCabe, visual information specialist, Public Information, SCS, Washington, DC.)

John R. Block
Secretary of Agriculture

Peter C. Myers, Chief
Soil Conservation Service

All programs of the U.S. Department of Agriculture are available to everyone without regard to race, creed, color, sex, age, or national origin.

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Guest Editorial

National Wildlife Federation Promotes Soil Conservation

As the Nation's largest private citizen's conservation education organization, the National Wildlife Federation has as one of its primary objectives helping the public gain a greater understanding of the need for the wise use and proper management of natural resources—soil, water, air, minerals, plants, and wildlife.

One of our major conservation education programs is National Wildlife Week. For the past 48 years, the Federation and its State affiliates have sponsored this award-winning program, which is traditionally observed during the first week of spring. The goal of Wildlife Week is to heighten public awareness about resource conservation especially as it pertains to wildlife.

This year's theme, celebrated March 17–23, is "SOIL—we can't grow without it." Soil is a vital resource that is disappearing at an alarming rate. It is estimated that we lose 6.4 billion tons of soil a year. This soil pollutes waterways, fouls the air, and contributes significantly to wildlife habitat destruction.

Over the course of 1985, we will distribute more than 500,000 Wildlife Week education kits to schools, nature centers, and conservation education organizations across the country. These Wildlife Week materials, available without charge, will focus on the importance of soil to people and wildlife. The materials will also help people better understand our Nation's soil erosion problems and present information about conservation techniques and soil-saving tips individuals can use in their local environment.

The Soil Conservation Service has been an invaluable resource in helping our education staff develop these quality educational materials that can be used in a variety of educational settings, not only during Wildlife Week but for years to come.

We have enjoyed this cooperative relationship and appreciate the opportunity to be able to coordinate our Wildlife Week celebration with the 50th anniversary of the Soil Conservation Service. We look forward to working together in future conservation education endeavors.

Jay D. Hair

Jay D. Hair
Executive Vice President
National Wildlife Federation

Bringing Wildlife Back to Cash-Grain Country

A conservation district in Illinois is working to bring pheasants and other prairie wildlife back to cash-grain country. The Champaign County Soil and Water Conservation District is helping to create habitat elements of the type lost when land used for hay and pasture is converted to row crops such as corn and soybeans.

Major participants in this effort are the Illinois Department of Conservation (DOC) and farmers who have agreed to turn roadsides, ditchbanks, and other small areas into miniature hayfields. DOC provides grass seed and sowing equipment to farmers who agree to maintain the areas as wildlife habitat. The district and the Soil Conservation Service promote the DOC programs and help the farmers incorporate this work into their conservation plans.

In recent years, populations of prairie wildlife have plummeted in eastern Illinois along with the acreage of grassy fields suitable for nesting cover. According to one estimate, the numbers of pheasants, meadowlarks, and bobolinks have decreased more than 90 percent during the past 20 years. Prairie birds can feed on waste grain left in crop fields and may pick at corn along field borders, but generally don't nest in intensively grown row crops.

The district chose Harwood Township, a 6-mile square in the northeastern part of the county, to be a pilot during 1984 for its new emphasis on wildlife. "We chose Harwood Township," said Ken Kesler, district chairman, "because it is a heavy cash-grain area that has some serious erosion problems and a lack of wildlife habitat."

Two programs of DOC are being promoted. One is "Roadsides for Wildlife," in which a mixture of smooth bromegrass and alfalfa is sown along roads, streambanks, drainage ditches, and terraces. These grass-legume strips provide nesting cover that complements the food to be found in crop residue left by conservation tillage on nearby cropland. The farmer agrees to delay mowing these strips until August, after pheasants and their chicks have moved from their nests in search of food. Because this cover grows to a height of 24 to 30 inches, the farmer is encouraged to mow once before winter to reduce snowdrift.

The second program is "Acres for Wildlife." In this program, DOC provides seed and helps plant up to an acre of wildlife cover or food crops if the farmer agrees to maintain the plot for at least a year. Switchgrass is often seeded in unused odd-shaped areas to provide cover for cottontails and pheasants.

Six farmers joined the programs at an initial meeting in the spring, according to Ron Lowery, SCS district conservationist. This led to the seeding of 3 miles of roadside and 2 acres of other land, including a bare bluff of steep, severely eroding soil. Since then, Lowery said, many more farmers—and even whole drainage districts—have enrolled and their acreages are being seeded as the DOC schedule permits. DOC recently seeded a strip 10 feet wide on both sides of a ditch 8 1/2 miles long for a drainage district near Champaign.

Lowery said he hopes to expand the emphasis on wildlife to other townships. "Results have been good," he said, "but we've also learned a few lessons." Two keys for success, he said, are scheduling meetings so as to avoid conflicts for the farmers and coordinating promotional activities with DOC.

"It's too early to tell how much wildlife we're bringing back," Lowery said. "We know we've got a good thing going, but we don't know how far we're going to have to go to get significant results."

Joe Barkley,
resource conservationist, Champaign County Soil and Water Conservation District, Champaign, IL

Missouri Meets Wildlife Needs in Conservation Planning

Conservationists in Missouri are planning small watershed projects and onfarm conservation systems to meet the needs of fish and wildlife. At the same time, they are reducing the need for expensive measures to lessen adverse effects on wildlife habitat.

The Missouri Department of Conservation (MDC) and the Soil Conservation Service have incorporated the Habitat Evaluation Procedures (HEP) developed by the U.S. Department of the Interior's Fish and Wildlife Service (FWS) into their land and water conservation planning.

Based on models of wildlife needs, HEP rates the quality of habitat in an area for a particular wildlife species according to the number and size of trees, number of den trees, and other factors. The information is used to make wildlife species models that show how alternative conservation treatments would affect the quality of habitat.

The species models used in Missouri were developed by the University of Missouri Cooperative Wildlife Research Unit. SCS, in cooperation with MDC and FWS, further refined, field tested, and reviewed the models.

The models are used to assign a habitat suitability index to an individual field or wooded tract according to six broad habitat types: woodland, grassland, cropland, forested wetland, nonforested wetland, and old field. The models ascribe a numerical value to plant structure and species composition of sample sites, as well as land use patterns around the sites.

For most species, critical limiting factors are identified that must be present at a minimum level. A total of 31 species models were developed for Missouri, including game species, nongame species, and species representing unique or sensitive habitat requiring special consideration in project planning.

The numerical evaluation, along with standard definitions, enables land managers, conservationists, and biologists to

make consistent assessments.

For their field personnel, SCS and MDC developed a Missouri Wildlife Habitat Appraisal Guide. The guide shows quantifiable effects of different levels of farm management on wildlife. SCS and MDC are planning to produce a statewide report on the status, condition, and trends of Missouri's wildlife habitat.

SCS in Missouri has developed a supplemental data collection sheet to complement the inventory booklet of the 1982 National Resources Inventory. The data sheet shows wildlife habitat characteristics important to selected species used in the species habitat models.

SCS, MDC, and FWS are using species habitat models in planning small watershed projects and land treatment measures in Missouri to account for wildlife needs throughout the planning process. So far, this approach has enabled the team to cut approximately $600,000 worth of mitigation measures—such as installing fencing and plantings and acquiring land rights—from the plan costs for the West Fork of Big Creek small watershed project.

Another advantage of this wildlife habitat appraisal method is that it documents secondary benefits to wildlife from soil and water management systems.

John P. Graham,
biologist, SCS, Columbia, MO

Edward A. Gaskins,
biologist, SCS, Columbia, MO

David L. Urich,
Federal liaison coordinator,
MDC, Jefferson City, MO

Help for New Hampshire Wildlife

The common loon, the white-tailed deer, and the wild turkey are popular wildlife species of New Hampshire's lakes, forests, and farms. And, all three species are benefiting from cooperative programs between conservation districts, the Soil Conservation Service, State agencies, and private organizations designed to monitor and increase or restore their populations.

The key is educating private landowners about wildlife management, through conservation district contacts made as part of the regular conservation planning process.

The common loon *(Gavia immer)* has been on the New Hampshire threatened species list since 1978. Acceptable nesting sites are scarce and nests are often abandoned, due to human disturbance.

To help these threatened birds, the Loon Preservation Committee, a subcommittee of the New Hampshire Audubon Society, builds and maintains artificial nesting islands for adult loons. The group also monitors the changeable populations.

Seeking help, Committee Director Jeff Fair appealed to four western New Hampshire conservation districts. Through their landowner contacts these districts are spreading the word about the preservation effort and urging many additional people to report loon sightings.

"We've already had great response from people reporting loons, asking questions, and volunteering to help," Fair said. What's more, the 1984 census reports an increase in sightings of both chicks and adult loons over 1983.

In the face of habitat changes and harsh winters, white-tailed deer *(Odocoileus virginianus)* have been decreasing since 1968. Unfortunately, deeryards which offer winter cover are in areas of softwood (hemlock, spruce, and fir) which are often harvested for timber. The New Hampshire Fish and Game Department is trying to inventory and save these valuable areas on private lands. Conservation districts and SCS are helping with this effort.

In the winter of 1982, New Hampshire Fish and Game biologist Joseph Wiley trained SCS personnel to identify deeryards in the field. With this knowledge, SCS people can now contact the game department whenever they locate deeryards while working with landowners. To date, five potential deeryards have been located.

SCS is presently drawing up standards with John Lanier, biologist of the White Mountain National Forest, that describe how to manage deeryards. SCS district conservationists can then include these vulnerable areas in the conservation plan.

Wild turkeys *(Meleagris gallopavo)*, historically common, had disappeared from New Hampshire through overhunting and habitat changes. But since 1975, New Hampshire Fish and Game biologist Theodore Walski has worked to reintroduce the bird.

Part of Walski's plan is to monitor the populations, noting the number, distribution, and food habits of the turkeys. Districts have reached out to landowner clients and funneled reports of sightings back to Walski, giving him statewide coverage. Through district urging, farmers are leaving standing corn for winter food. In addition, districts helped distribute shrubs for turkey habitat that were provided free of charge by New Hampshire Fish and Game. In return, landowners have rediscovered the pleasure of seeing these birds again.

These projects have proved important in promoting interagency relations as well as protecting the valuable wildlife resource.

Judy Tumosa,
biologist, SCS, Durham, NH

Maryland Farmer Grows Farm Fresh Seafood

Instead of fretting over low harvests of favorite catches from nearby Chesapeake Bay, Wally Miller, manager of Walnut Point Farm in Kent County, MD, began growing his own. If all goes as planned, consumers in certain test markets may be buying "farm fresh seafood" as early as next summer.

Miller is experimenting with hybrid rockfish, soft-shell crabs, and low-salinity oysters in a cooperative venture with the University of Maryland's Estuarine Studies Lab and the Soil Conservation Service. He is convinced that raising these popular seafoods, especially rockfish, can be a profitable sideline for farmers. The State of Maryland has banned the catching of rockfish in public waters because of their dwindling population.

Experimentation and demonstration are what Walnut Point Farm is all about. Miller, who manages the 585-acre farm as an investment for a Philadelphia businessman, is a former game warden and county commissioner. He says he's motivated by an inquisitive mind and doesn't plan to produce the fish commercially. He'd rather work with SCS and other agencies to develop and promote new concepts for farmers.

Miller is growing the hybrid rockfish, a cross between rockfish and white bass, in farm ponds designed by SCS and the Kent Soil Conservation District. The ponds had to be a certain depth, says SCS District Conservationist Ralph Timmons, but they are typical of "the basic pond most farmers have."

The rockfish are kept in underwater pens, 8 feet square and 8 feet deep, made of nylon net tacked onto wooden frames and fastened to floating walkways. A feeder drops food pellets into the water every time a fish swats an underwater wire with its tail.

Miller can grow about 1,000 rockfish, almost a ton of seafood, in each pen. "We started them as fingerlings and in 15 months had them to 2 1/2 pounds. The best size for marketing is probably a little smaller," he says. "They fit better in a frying pan or plate at 1 1/2 to 1 3/4 pounds. Producing a consistent product will allow easier direct marketing."

In another operation, Miller is raising soft-shell crabs in a small log cabin behind his house. He buys small crabs, called "peelers," for 25 cents each and keeps them in vats filled with salted well water until they shed their hard outer shell. The water is in a closed system that requires it to be run through three filters. Soft-shell crabs sell for about $18 per dozen, and Miller says a shedding operation such as this can be started with an initial investment of about $2,500.

Miller has also started a small bar of oysters in a private creek. "The world already knows enough about growing oysters in salt water," he says. "We're trying to see if they can be produced in less saline water. The university is doing some experimental breeding with oysters. Next year, we plan to try some pen culture in public waters."

The aquaculture experiments actually grew out of an effort to make the farm a model of wildlife management. "Basically we had some land that we really didn't need for anything else," Miller said. "Our original purpose for the farm was wildlife management. The first thing we did after the farm was purchased was go see Ralph Timmons. The runoff and erosion were shameful."

Timmons helped Miller develop a conservation plan that blended erosion control measures with wildlife conservation practices. Active erosion was reduced through practices such as grassed waterways, water control structures, and no-till planting. The farm borders 2.9 miles of creek, so controlling sediment and nutrient runoff was also important.

Miller planted a 50-foot-wide strip of wildlife food plants around the property in the so-called "sap strip" between cropland and woods. Crop yields in the sap strip are low, says Timmons, because the trees shade it from the sun. "There's no point in letting it grow up in weeds when you can plant some permanent food plots for wildlife," he reasons.

The farm has nine ponds built at runoff entry points to the creek to serve as final settling basins. Four of the ponds in wooded areas are "greentree reservoirs," in which the water level can be regulated by a control structure. The water is lowered in summer while trees in the ponds are growing and producing mast, then raised in the fall so ducks can dabble for food on the bottom. Two other ponds are drained late in spring and planted to millet or wild rice. Refilled in the fall, they attract ducks and geese that paddle along feeding on the grain that protrudes above the surface.

Migrating Canada geese blanket the ponds in fall and winter and move out to feed on kernels of corn left among the crop residue in nearby fields after harvest. More than a mile of hedgerow has been planted to bicolor lespedeza and autumn-olive to provide food and cover for small game such as rabbits and quail.

As a privately funded experimental facility, the Walnut Point Farm gives SCS and other agencies an opportunity to conduct field trials for which they otherwise might not have the location or funding. For Miller, this in itself brings a certain satisfaction. "If you go through life without leaving something for people," he says, "you haven't accomplished much."

Katherine C. Gugulis,
public affairs specialist, SCS, College Park, MD

No-Till Benefits Upland Game Birds

No-till farming is improving the habitat for upland game birds as well as reducing soil erosion in Wallowa County, OR. No-till, which has become a common practice of wheat and barley farmers in this high mountain valley, provides birds with winter cover and a food supply.

No-till has been growing in popularity in the county since 1978 when Sam Wade and the Wallowa Soil and Water Conservation District (SWCD) began experimenting with it in an attempt to reduce the tremendous soil loss associated with traditional wheat-summer fallow operations. Wade is a farmer who is also a director of the SWCD. Now there are 10 drills used for no-till planting in the county, and in 1984 no-till was practiced on approximately 15 percent of the acres farmed. Four of the largest farms have converted their operations almost entirely to no-till.

In the years that no-till has been practiced, soil erosion on cropland has drastically decreased while yields have stayed the same or increased. This reduction of erosion has meant less silt in local streams, which are some of the most important salmon and steelhead spawning streams in the Pacific Northwest. Farmers using no-till have also reported improved soil moisture conditions, better soil structure, and higher organic matter levels in the soil.

An unexpected benefit from no-till, however, has been an increase in the number of upland game birds such as ring-necked pheasants, Hungarian or Gray partridge, and California quail. State wildlife officials report that pheasant crow calls, which are counted at specified times and locations each spring, indicate that the pheasant population has doubled since 1980. Natural cycles may have triggered this increase, and chick-release programs initiated by the Oregon Department of Fish & Wildlife certainly played a role. Officials say the increase is most noticeable, however, in areas where large farms have changed to no-till and, in so doing, have improved the habitat.

Most of these upland game birds are not native to this part of northeastern Oregon. Huntable populations were developed in Wallowa County by successful transplanting in the 1930's, but their numbers have been limited by a scarcity of cover and food during the harsh winters. Conventional tillage leaves little, if any, cover and food. With no-till, however, the stubble, including much scattered grain, is left intact and standing over winter whether the field is drilled for fall crops or is left over winter for spring cropping. This crop residue provides the birds with some cover and ample food.

Understanding this relationship has enabled farmers to apply other conservation practices to enhance the habitat improvement value of no-till. Practices include providing cover by fencing off unused, odd-shaped corners and steep gullies and by planting windbreaks along crop fields. Planting shrubs and trees that produce edible seeds and fruit not only helps stabilize the soil but also provides food and cover. Practicing no-till on fields adjacent to a well-vegetated stream corridor provides a habitat that is almost complete.

Although more needs to be known about long-term effects, the no-till program in Wallowa County so far is proving beneficial to upland game birds as well as protecting the soil and water resources. It is providing exciting and rewarding opportunities for farmers, soil conservationists, and wildlife biologists.

Ken Hale,
soil conservationist, SCS, Enterprise, OR

Walt Van Dyke,
biologist, Oregon Department of Fish & Wildlife, Enterprise, OR

Celebrate National Wildlife Week

The National Wildlife Federation has produced several different kinds of materials to help celebrate National Wildlife Week throughout 1985:

- A Wildlife Week kit, which includes two colorful posters, an educator's guide with activities for grades K-12, 36 stamps, and a special overhead transparency. These kits are used by teachers, Scout leaders, naturalists, and librarians during Wildlife Week and throughout the year to develop a new awareness of our soil resources.
- A public service announcement with Eddie Albert and Muppet Rowlf the Dog, who co-chair National Wildlife Week 1985. Eddie and Rowlf are appearing in TV and radio spots to stimulate public interest in soil conservation.
- A new filmstrip and slide/tape program, "SOIL—we can't grow without it." Magnificent slides of wildlife and stunning landscapes help illustrate the importance of soil and add clarity and impact to the 1985 Wildlife Week message. The program includes approximately 80 color slides, a 15-minute cassette program, and an educator's guide with a narrative script and suggestions for soil activities which complement the program. To order the program, send $26.95 for the SOIL: Slide/Tape Show (#79398) or $24.95 for the SOIL: Filmstrip/Tape Show (#79395) to National Wildlife Federation, Dept. 184, 1412 16th Street, NW, Washington, DC 20036.
- The eight-page conservation publication, "SOIL: The Miracle We Take For Granted"—a special report from *National Wildlife* magazine, February/March 1985, made available as a reprint. This publication is available free for single copies and 50 cents for additional copies. Write to National Wildlife Federation, Educational Servicing, 1412 16th Street, NW, Washington, DC 20036.

Betty Olivolo,
Wildlife Week Coordinator, National Wildlife Federation, Vienna, VA

SCS Helps Conserve Louisiana Marshes

First, the grass dies. Then tides flow over the mud flats and carry away the soil. In this way, more than 30,000 acres of Louisiana marshland is destroyed each year.

The Louisiana marshland reaches 10 to 50 miles inland from the Gulf of Mexico and extends along the entire coastline of Louisiana, from Texas to Mississippi. It covers 3.7 million acres and makes up 40 percent of the Nation's coastal wetlands.

The coastal marshes of Louisiana are among the most productive wetlands in the world, and their conservation is vital to fish and wildlife. In recent years they have accounted for an average of 22 percent of the total U.S. fisheries production. Fish and shellfish harvests in the marshes contribute about $900 million a year to the State's economy.

The marshes also produce about $18 million a year in furs from nutria, raccoon, and muskrat. The American alligator, which was once an endangered species, is again flourishing in the marshes. About 15,000 alligators worth $1.8 million are harvested annually.

More than 20 species of ducks winter in the marshes, the primary wintering ground of the Mississippi flyway. Hunters harvest about 2 million ducks and more than 100,000 geese annually.

The marshland and adjacent areas also produce significant amounts of oil and natural gas. In fact, most of the State's revenues come from severance taxes on the oil and gas produced on these lands.

To help conserve the marshland as a valuable resource, the Soil Conservation Service and the conservation districts along the gulf coast have recently increased assistance to cooperating marsh owners and users. SCS now has 10 offices that serve the marshland. More than 2 million acres is covered by agreements with the districts, and conservation plans have been developed for most of this land.

Conservation planning is not new in the Louisiana marshland. SCS for years has been helping to develop multi-use plans, particularly in the southwestern areas. Planning has now been accelerated in the central and southeastern areas.

Considerable expertise is required to evaluate marshland and determine which conservation practices help most to achieve the goals of the owner. This planning is done by teams that normally consist of a district conservationist, biologist, range conservationist, and engineer. Where soil surveys are not available, the teams include a soil scientist.

"The Louisiana marshland is a very complex ecosystem, and evaluation from several specialists is important in developing good multi-use plans," said Jack Cutshall, SCS range conservationist. Cutshall, who works frequently as a planning team member, is a specialist in marsh vegetation. He points out that marsh vegetation is sensitive to the salinity of the water, depth of the water, and frequency and duration of flooding. Any disruption of the conditions to which the plants are adapted results in a change or loss of vegetation.

During an evaluation, the planning team makes several stops within the area designated as a "land treatment unit." Team members examine the vegetation, soils, erosion potential, topography, and other features at each stop. The data collected are then used to recommend such conservation practices as prescribed burning, critical area treatment, and water control structures.

Two major efforts are aimed at areas with serious erosion problems. One is to help plan and give technical assistance in the construction of weirs, or low-level dams, and other structures to regulate water and salinity levels. The other effort is to plan the establishment of vegetation and the construction of structures to check marsh and shoreline erosion.

According to Jimmy Winston, SCS area conservationist at Crowley, mud flats are created where vegetation dies as a result of increased water salinity or drastic water level fluctuations. "The daily movement of water over these mud flats results in erosion," Winston said. "It's not uncommon for more than 100 million tons of soil to erode from the unvegetated areas each year, and this results in thousands of acres of open water or bare mud flats in the marshes. Some open water is desirable, but too much upsets the ecological balance."

SCS and staffs from the Iberia-Vermilion, St. Mary, and Lafourche-Terrebonne Soil and Water Conservation Districts have worked with many marsh owners to plan and build low-level weirs to regulate waterflow in and out of the marsh. "When you regulate water in the marsh, you can bring the areas now void of vegetation back to life," said Faye Talbot, SCS district conservationist at Houma, whose work area includes 630,000 acres of marsh.

Severe erosion also occurs along earthen structures, such as canals, roads, and pipelines, that have been built on the shores of bayous, lakes, and the gulf. During the past 2 years, SCS and the districts have worked with the owners of several large areas to plant grasses along lake shores. Assistance has also been provided to other marsh owners in seeding and planting grasses on sand dunes and barrier islands that help protect the marshes from tropical storms that blow ashore from the gulf.

One grass-planting project was in Cameron Parish on the shores of Calcasieu Lake, which is surrounded by marsh. Jobs Bill employees were used to gather smooth cordgrass plants in the area and plant them along the shore of the lake where natural and constructed levees were eroding. "We noticed that where smooth cordgrass was growing near the water's edge, there was little erosion," said Francis Ezernack, SCS district conservationist at Lake Charles.

Protecting the Louisiana marshland poses problems that are varied and complex, and an enormous task remains in finding solutions to these problems. Land losses continue, but a concentrated effort is being made to save this vast resource for future generations.

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Guidelines for Increasing Fish and Wildlife on Farms and Ranches

Written by 80 agricultural and wildlife management specialists, this handbook is designed to help landowners increase wildlife on farms and ranches in the Great Plains. Emphasizing wildlife habitat modification to benefit both agriculture and wildlife, it is designed for use by county agricultural agents and others interested in wildlife.

For a copy of the 600-page book send $27 to Wildlife Habitat Handbook, 118 Umberger Hall, Kansas State University, Manhattan, KS 66506.

Energy-Conserving Site Design

Edited by E. Gregory McPherson

Written by 11 energy experts and professional designers, this book provides landscape and other architects, planners, developers, students, and the layperson with a guide to energy-efficient site planning and design.

Organized into five sections, this book includes more than 200 illustrations which provide examples of state-of-the-art techniques used to create energy-efficient small- and large-scale developments and landscapes.

The 330-page book is available to American Society of Landscape Architects (ASLA) members for $17.95 and to non-ASLA members for $21.95 (plus $2 for postage and handling) from LA Bookstore, ASLA, 1733 Connecticut Avenue, NW, Washington, DC 20009.

Enhancing the Wildlife Values Associated With Windbreaks

by the Soil Conservation Service, Midwest National Technical Center

Windbreak plantings can, if planned properly, enhance the wildlife values associated with them by providing significant food and cover for wildlife.

This publication (Midwest NTC Technical Note No. 190–LI–4) illustrates the basic components of good windbreak-wildlife plantings. Line drawings and charts are used to show the types of trees and shrubs that can be used in these windbreak plantings.

For a copy of this 10-page publication contact Ecological Sciences Staff, USDA, SCS, Midwest NTC, Federal Building, Room 345, 100 Centennial Mall North, Lincoln, NE 68508.

Reference Document: Needs Assessment for the Food and Agricultural Sciences

by the Joint Council on Food and Agricultural Sciences

This report is one of four reports the Joint Council on Food and Agricultural Sciences has developed to work toward improving the overall effectiveness of the food and agricultural system.

It contains 15 papers authored by 40 nationally prominent scientists and administrators and examines the 20- to 30-year needs for food, fiber, and forest products, and the supporting roles played by research, extension, and higher education.

The report recommends that the food and agricultural science system continually update and revitalize itself by training future scientists and managers; maintaining technology and advancing technology; providing the necessary equipment and facilities; and taking advantage of the new computerized information and analytical systems.

Summary: Needs Assessment for the Food and Agricultural Sciences, another report by the Joint Council, highlights the findings in the reference document.

Copies of the 328-page report and the summary are available from Larry Miller, Executive Secretary, Joint Council on Food and Agricultural Sciences, U.S. Department of Agriculture, Room 321-A, Washington, DC 20250.

Plants for Coastal Dunes of the Gulf and South Atlantic Coasts and Puerto Rico

by Robert M. Craig

With erosion being a problem on about 900 miles of Atlantic and Gulf coast dunes and beaches, this full-color pamphlet has been published to help people select and use plants to stabilize and beautify dunes in these areas. It explains how the dune ecosystem and human activities must be considered in planning revegetation of dunes and beaches.

In the Soil Conservation Service's field guides, 43 plant species have been identified as having good potential for dune revegetation. This publication describes the methods of preparing the planting site, and the establishing and maintaining of each of these 43 plants, which include trees, shrubs, grasses, and other herbaceous plants.

Copies of this 42-page pamphlet are available from State and local SCS offices in the Gulf and South Atlantic Coast States and Puerto Rico. For further assistance in protecting coastal dunes, contact the local SCS office.

This Land Is Your Land

by Bernard Shanks

The author, an expert on public land policy, takes a sharply critical look at the Federal Government's management of public lands and calls for sweeping reform.

In this 310-page book, subtitled "The Struggle to Save America's Public Lands," he chronicles the birth and growth of the conservation ethic and the wild swings that environmental policy has taken in this century.

He discusses livestock grazing and its effect on the problems of forage and soil erosion; forest policy and the "mismanagement" of America's timber resources; the battles over Alaska; and "reckless exploitation of mineral resources in the name of national security."

This Land Is Your Land is available for $19.95 (plus $2.50 for postage and handling) from Sierra Club Books, P.O. Box 3886 Rincon Annex, San Francisco, CA 94119.

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